Region 4's Response
To
The National Remedy Review Board's Recommendations
For
The American Creosote Works NPL Site
Louisville, Winston County, Mississippi
MSD004006995

1. **Recommendation:** *Information presented to the Board indicates that, based on further evaluation of ground water and subsurface soil contamination, the footprint of the barrier wall may decrease; or alternatively, two smaller walls may be constructed. Selection of alternative S2A may also result in a smaller barrier wall. The Board recommends that the Region continue to evaluate ways to reduce the size of the areas that will be capped by minimizing the size of the barrier wall or constructing two smaller barrier walls. However, the Board also recognizes that given the nature of the contaminants and extent of contamination at the site, it will be difficult to determine whether all significant sources of ground water contamination can be identified or whether some will remain beyond the proposed barrier wall.*

   Response: As part of the ongoing Remedial Design, the Region is conducting additional site characterization to further our understanding of the area and extent of contaminated groundwater on the site. This will insure that the barrier wall contains, to the maximum extent possible, all contaminated groundwater that exceeds the groundwater remedial goals presented in the 2007 Record of Decision, Table 1. It is hoped that the Remedial Design will determine that the area needing to be capped and contained by barrier walls can be minimized.

2. **Recommendation:** *Based on information presented, the Board does not believe that alternative S2, which incorporates a soil/cement cap, is necessary to achieve a protective remedy for site soils. Alternative S2A, which utilizes a geosynthetic clay liner composite cap, should be able to effectively contain contaminated site soils at significantly less cost (i.e., a present worth cost difference of $12 million). Based on the information in the package, it appears that the Region is considering the higher cost alternative in part to facilitate reuse of the site. The Board believes that there are potential betterment/enhancement issues associated with the Region's preferred approach. If there is a betterment/enhancement, the associated incremental costs should not be borne by EPA; rather, any additional costs to promote redevelopment should be the responsibility of other parties (e.g., State, town, developer). Additionally, it is not clear to the Board that the soil/cement cap would enhance the reuse potential of the site.*

   Response: At the NRRB meeting, the Region presented an excavation, consolidation, and capping remedy of contaminated soils and sediments utilizing a 3 foot soil cement sub cap with an estimated cost of $30 million. In light of the concerns raised during the meeting and upon further consideration, the Region

revised the capping component of the soil /sediment remedy. The remedy contained in the 2007 ROD calls for the excavation, consolidation and capping utilizing a 2 foot thick soil cement sub cap over a maximum 16 acres of the containment area. The remaining 11 acres will be covered with a low profile composite cap. The estimated cost for the revised remedy is $20.5 million.

3. **Recommendation:** *The Board notes that the human health and ecological risk assessment as presented in the package provides insufficient detail to understand fully the risks presented by the site. Among other issues: 1) hazard indices for adults and children should not be added together; 2) hazard indices should be separated out by target organ; 3) the industrial/commercial exposure scenario should be presented; 4) human health risks associated with sediments should be considered since people could come in contact with these sediments; and, 5) soil cleanup goals for ground water protection should be consistent with the ground water contaminants of concern. The Board recommends that the Region review the risk assessment for accuracy and provide additional detail on risk to support the proposed remedial action in the decision documents.*

   Response: In the final ROD, additional effort was made to insure that the ROD's text, tables, and graphics adequately describe the hazards posed by the site and identify the areas needing remediation.

   A summary of the site risks is contained in Section 7.0 of the ROD. A summary of the Human Health Risk Assessment is presented in Subsection 7.1 and summary of the Ecological Risk Assessment is presented in Subsection 7.2. Site Cleanup Goals are presented in Table 1. Concentrations of COCs are presented in Table 4. Table 7 presents the occurrence, distribution, and selection of COPCs in shallow groundwater. Table 8 presents a summary of the Medium-Specific Exposure Point Concentrations for surface soil COPCs. Table 9 presents a summary of the Medium-Specific Exposure Point Concentrations for groundwater COPCs. Table 10 presents a risk characterization summary for carcinogen COCs and Table 11 presents a risk characterization summary for non-carcinogen COCs. Table 12 presents the occurrence, distribution, and selection of Ecological COPCs for surface soils and sediments. Figure 5 depicts the area and extent of surface soils containing COCs above cleanup standards. Figure 6 depicts the area and extent of subsurface soils that exceed cleanup standards. Figure 8 depicts the area and extent of on-site sediments that exceed cleanup standards and Figure 9 depicts off-site sediments.

4. **Recommendation:** *The package presented to the Board indicated that remediation is justifiable based on ecological risk. However, the Region's evaluation of remedial alternatives did not indicate the extent of remediation that would be required to meet ecologically-based remediation goals. The Board recommends the Region include in the decision documents a more detailed presentation of the area and volumes of soil and other material at the site that need to be addressed due to ecological risk.*

Response: The Final FS estimates that the following volumes of contaminated sediments pose an unacceptable ecological risk:

- 23,000 yd^3 in Railroad Lake;
- 12,000 yd^3 in Hughes Creek onsite;
- 5,000 yd^3 in Hughes Creek offsite.

The ROD clearly identifies in Subsection 7.1, Table 12, and Figures 5, 8, 9 the location and estimated volumes of soils and sediments needing remediation.

5. **Recommendation:** *The selected ecologically-based remedial goal for sediments is 100 mg/kg total PAHs and for soils is 2,700 mg/kg. The Board recommends that the decision documents discuss the issue of potential for recontamination of sediments from residual soil contamination and explain how protectiveness will be maintained throughout the site.*

Response: These values are taken from Step Seven of the Ecological Risk Assessment. They are based on different ecological receptors and different exposure scenarios. During the current development of the Remedial Design, this issue is being addressed and the design will include a plan to maximize erosion control on the site.

6. **Recommendation:** *The package presented to the Board indicates that an ecologically-based remedial goal of 0.0003 mg/kg of dioxin-TEQ may be selected. The Agency policy states that generally 0.001 mg/kg dioxin-TEQ is protective of human health and the environment. The Board recommends that the Region reevaluate the need to develop a remediation goal based on dioxin-TEQ if existing concentrations are below potential goal concentrations.*

Response: In the 2007 ROD, Region 4 chose a remedial goal of 0.001 mg/kg dioxin-TEQ for the site in accordance with the Agency's policy.

7. **Recommendation:** *The package states that the proposed soil disposal area and barrier wall may be located within the 100-year flood plain (p. 38 of the package). However, the package did not identify the location of the 100-year floodplain with respect to the site. The package also notes that this may require waivers associated with the Executive Order for wetland and floodplains. The Board notes that Executive Orders are not applicable or relevant and appropriate requirements (ARARs) and, therefore, a waiver is not available. Additionally, the Board recommends that the Region review other potential siting requirements that may constitute ARARs (e.g., RCRA location standards) which could impact the final location of the soil disposal area/cap/barrier wall. Finally, if the floodplain impacts result from the proposed remedial action, floodplain compensation areas should be identified and associated costs estimated in the decision documents.*

Response: It is estimated that approximately 5 acres of the disposal area and associated barrier wall will be located within the 100-year floodplain of Hughes

Creek. All appropriate ARARs and Executive Orders related to construction in a floodplain will be addressed during the development of the Remedial Design. Tables 17 and 18 in the ROD present a refined list of ARARs.

8. **Recommendation:** *The package indicated that some soil remediation goals are based on ground water protection cleanup values using the EPA Region 9 ground water protection values. While not specified in the package, the Board suspects that these were developed assuming a dilution attenuation factor (DAF) of 1. The Board notes that this may represent a very conservative assumption for this site and may not be appropriate. The Board suggests that the Region evaluate whether this assumption is reasonable for this site in lieu of a site-specific value taking into consideration relevant factors (e.g., organic carbon content, water solubility, depth to ground water, ground water velocity). The Region also should consider whether changing the DAF would impact soil remediation goals, and consequently, the cleanup volumes and costs, and whether more realistic assumptions should be developed. The Board recommends that the volume of soil to be addressed for ground water protection, as opposed to direct contact human health risk or ecological risk, should be described in the decision documents.*

   Response: The Board's assumption that Region 4 used Region 9 groundwater protection values based on a dilution attenuation factor (DAF) of 1 is not correct. Region 4 used Region 9 values based on a DAF of 20. Region 4 believes that a DAF of 20 is reasonable given the high silt and clay content of the soils encountered at the site. Figure 5 in the ROD identifies areas of contaminated soil that exceed the ROD's soil remediation goals for the protection of groundwater.

9. **Recommendation:** *The Board recommends that the proposed plan clearly identify the institutional controls (ICs) associated with each alternative under consideration. This approach will allow the community to provide more meaningful comments on the ICs, as well as the other components of the alternatives. The Region should consider whether the preferred alternative should include provisions for preventing residential use of the entire site property, preventing use or exposure to ground water in the proposed containment structure, and protecting components of the constructed remedy. Based on the information presented to the Board, it is not clear whether restrictions on ground water use outside the containment system are required.*

   Response: Institutional controls are an essential component of the selected remedy. The description of the remedy in Section 12.0 of the ROD, clearly states that ICs will be instituted at the site. ICs will be put in place to maintain the current commercial / industrial land use zoning and to prevent residential use in the future. ICs will be instituted to protect the integrity of the containment area cap and to prevent future use of shallow groundwater on the site.

10. **Recommendation:** *Numerous unit costs (e.g., excavation, geosynthetic clay liner) appear to differ significantly from unit costs for sites elsewhere in the Region. The Board recommends that the Region reevaluate unit costs to ensure they are*

accurate. For example, unit costs for stabilization and solidification should be better defined and refined.

Response: After this issue was raised in the NRRB meetings, the Region's contractor Black & Veatch was directed to revise the cost estimates to insure that consistent unit costs were being used where appropriate. The remedy cost estimates are presented in Tables 19 and 20 of the ROD.

11 **Recommendation:** *The soil/sediment alternatives include excavation of sediments from Railroad Lake and Hughes Creek. The associated cost estimates provide for excavation and dewatering, but do not appear to cover draining Railroad Lake or potentially treating surface water. There is also no discussion in the package about reestablishing the lake and dam, or alternately reestablishing the drainage pattern. The Board recommends that the decision documents describe the remediation planned for the lake area and include appropriate line items in the cost estimates.*

Response: The revised cost estimate for the preferred remedy contains a line item for draining the lake and managing the water. The Region is in the process of contacting the owner of the Railroad Lake property to explain the need to remediate the lake sediments and to learn what the owner's future plans are for using the property. The outcome of these discussions will be factored into the Remedial Design.

12. **Recommendation:** *The package presented to the Board did not discuss the State Classification of the Middle Wilcox Aquifer and its relevance to remedial action objectives (RAOs) for ground water at the site. The Region indicated at the meeting that the State considers all ground water to be potential sources of drinking water. The Board recommends that the Region clarify whether ground water outside of the proposed containment area meets drinking water standards and if not, how the remedy will address that area.*

Response: As stated in the response to the Board's recommendation number one, the Region is conducting additional site characterization during the Remedial Design, including additional groundwater investigation. The Region's goal is to implement a remedy that effectively contains all contaminated groundwater on the site that exceeds the ROD's groundwater remedial goals.

13. **Recommendation:** *The package was unclear about which specific ARARs for soil and ground water the remedy has to meet. The Region should describe in the decision documents what the ARARs are for the site and how they will be met or waived.*

Response: The Region developed a refined list of ARARs for the site. Tables 17 and 18 of the ROD identify the ARARs applicable to the remedy.

14. **Recommendation:** *The Board notes that no comments on any aspect of the recommended cleanup plan were provided by any of the Stakeholders (i.e., State,*

County, City, or residents), but encourages the Region to continue involvement of the stakeholders in the remedy selection process.

Response: The state has been involved in the development and implementation of each phase of the Remedial Investigation. Their comments on the draft RI/FS reports were incorporated into the documents. Periodic community availability meetings were held throughout the implementation of the RI. Over 150 copies of the Region's Proposed Plan were mailed to the community. Over 100 flyers were placed in the community announcing the August 16, 2007, Proposed Plan public meeting. Less than 20 residents attended the meeting. No comments on the preferred remedy were received during the meeting or during the comment period. As the Region moves forward with the Remedial Design and the Remedial Action, the Region will continue to seek input from the state and the community.